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**Exhibit R-2, RDT&E Budget Item Justification:** PB 2025 Navy **Date:** March 2024

<b>Appropriation/Budget Activity</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy / BA 4: Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>					<b>R-1 Program Element (Number/Name)</b> PE 0604031N / <i>Large Unmanned Undersea Vehicles</i>							
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025 Base</b>	<b>FY 2025 OCO</b>	<b>FY 2025 Total</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>FY 2028</b>	<b>FY 2029</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
Total Program Element	236.224	0.000	6.900	6.874	-	6.874	5.118	2.605	2.581	2.636	Continuing	Continuing
2094: <i>Unmanned Underwater Vehicle</i>	236.224	0.000	6.900	6.874	-	6.874	5.118	2.605	2.581	2.636	Continuing	Continuing

**A. Mission Description and Budget Item Justification**

The Snakehead Large Displacement Unmanned Undersea Vehicle (LDUUV) is the Navy's Large UUV effort as part of the Family of UUVs, in support of maintaining the Navy's undersea superiority. It is the Navy's largest Submarine-launched UUV, providing increased endurance, depth capability, and payload capacity beyond small and medium class submarine deployed UUVs. The Snakehead LDUUV is modular in design and includes high accuracy mission sensors and communications links, as well as modular payload capabilities. Modules have well defined interfaces for the purposes of implementing cost-effective upgrades in future increments to leverage advances in technology.

The Snakehead LDUUV program is a CNO/ASN(RDA) approved Accelerated Acquisition, featuring a phased approach to grow capabilities at a manageable level of risk. Phase 1 is a Government developed prototype with significant Industry involvement to develop Techniques, Tactics, and Procedures (TTPs), Concepts of Operation (CONOPS), and risk reductions for submarine and surface ship integration. One Phase 1 vehicle, with sufficient test spares, was fabricated and commenced subsystem testing in FY 2021 and vehicle in-water testing in FY 2022. Future LDUUV requirements include increased capabilities and integration onto submarines, as well as integration onto surface ships. Phase 2 efforts were stopped in FY 2022.

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025 Base</b>	<b>FY 2025 OCO</b>	<b>FY 2025 Total</b>
Previous President's Budget	0.000	6.900	7.037	-	7.037
Current President's Budget	0.000	6.900	6.874	-	6.874
Total Adjustments	0.000	0.000	-0.163	-	-0.163
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Rate/Misc Adjustments	0.000	0.000	-0.163	-	-0.163

**Change Summary Explanation**

Technical: Not applicable.  
Schedule: Not applicable.

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<b>Appropriation/Budget Activity</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy / BA 4: Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 Program Element (Number/Name)</b> PE 0604031N / <i>Large Unmanned Undersea Vehicles</i>
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Cost:  
FY 2023: No Change  
FY 2024: No Change  
FY 2025: -0.163M Miscellaneous adjustment

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2025 Navy										<b>Date:</b> March 2024		
<b>Appropriation/Budget Activity</b> 1319 / 4					<b>R-1 Program Element (Number/Name)</b> PE 0604031N / Large Unmanned Undersea Vehicles				<b>Project (Number/Name)</b> 2094 / Unmanned Underwater Vehicle			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025 Base</b>	<b>FY 2025 OCO</b>	<b>FY 2025 Total</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>FY 2028</b>	<b>FY 2029</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
2094: <i>Unmanned Underwater Vehicle</i>	236.224	0.000	6.900	6.874	-	6.874	5.118	2.605	2.581	2.636	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

The Snakehead Large Displacement Unmanned Undersea Vehicle (LDUUV) is the Navy's Large UUV effort as part of the Family of UUVs, in support of maintaining the Navy's undersea superiority. It is the Navy's largest Submarine-launched UUV, providing increased endurance, depth capability, and payload capacity beyond small and medium class submarine deployed UUVs. The Snakehead LDUUV is modular in design and includes high accuracy mission sensors and communications links, as well as modular payload capabilities. Modules have well defined interfaces for the purposes of implementing cost-effective upgrades in future increments to leverage advances in technology. The Snakehead program is a CNO/ASN(RDA) approved Accelerated Acquisition, featuring a phased approach to build capabilities at a manageable level of risk in the Navy's class of Large Displacement Unmanned Undersea Vehicles.

**B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)**

	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025 Base</b>	<b>FY 2025 OCO</b>	<b>FY 2025 Total</b>
<b>Title:</b> LDUUV Product Development	0.000	5.800	5.794	0.000	5.794
<b>Articles:</b>	-	-	-	-	-
<b>FY 2024 Plans:</b> Re-start LDUUV Program with demonstrations and experimentation of the prototype system. Provide technical and systems engineering for execution of demos, testing, and system refurbishment, and upgrades as required.					
<b>FY 2025 Base Plans:</b> Continue demonstrations and experimentation of the LDUUV prototype system. Conduct demonstration from surface vehicle vessel of opportunity. Provide technical and systems engineering for execution of demos, testing, and upgrades as required.					
<b>FY 2025 OCO Plans:</b> N/A					
<b>FY 2024 to FY 2025 Increase/Decrease Statement:</b> Decrease of \$0.006M from FY 2024 to FY 2025. No Significant Change.					
<b>Title:</b> LDUUV Support	0.000	0.525	0.525	0.000	0.525
<b>Articles:</b>	-	-	-	-	-
<b>FY 2024 Plans:</b>					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2025 Navy		<b>Date:</b> March 2024
<b>Appropriation/Budget Activity</b> 1319 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0604031N / <i>Large Unmanned Undersea Vehicles</i>	<b>Project (Number/Name)</b> 2094 / <i>Unmanned Underwater Vehicle</i>

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025 Base</b>	<b>FY 2025 OCO</b>	<b>FY 2025 Total</b>
Support re-start of LDUUV Integrated Logistics Support efforts. <b>FY 2025 Base Plans:</b> Continue LDUUV Integrated Logistic Support efforts. <b>FY 2025 OCO Plans:</b> N/A <b>FY 2024 to FY 2025 Increase/Decrease Statement:</b> No Change					
<b>Title:</b> LDUUV Management Services  <b>Articles:</b>	0.000 -	0.575 -	0.555 -	0.000 -	0.555 -
<b>FY 2024 Plans:</b> Provide program management support and travel for Phase 1 in-water test execution and fleet demonstrations. <b>FY 2025 Base Plans:</b> Provide program management support and travel for demonstrations and experimentation of the prototype system. <b>FY 2025 OCO Plans:</b> N/A <b>FY 2024 to FY 2025 Increase/Decrease Statement:</b> Decrease of \$.020 from FY24 to FY25. No significant change.					
<b>Accomplishments/Planned Programs Subtotals</b>	0.000	6.900	6.874	0.000	6.874

**C. Other Program Funding Summary (\$ in Millions)**  
N/A  
**Remarks**

**D. Acquisition Strategy**  
Snakehead LDUUV Phase 1 is a single Government developed prototype with significant Industry involvement to develop Techniques, Tactics, and Procedures (TTP) and Concepts of Operation (CONOPS) and reduce risk for submarine and surface ship integration. The Navy shared a Phase 1 Technical Data Package with Industry. Due to the lack of funds in FY 2023 and out, Phase 2 efforts were stopped in FY 2022. Conduct market research in FY 2023-FY 2024 for commercially available LDUUVs that meet the program requirements.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Navy												Date: March 2024			
Appropriation/Budget Activity					R-1 Program Element (Number/Name)					Project (Number/Name)					
1319 / 4					PE 0604031N / Large Unmanned Undersea Vehicles					2094 / Unmanned Underwater Vehicle					
Product Development (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
LDUUV Industry Prototypes and Demos	Various	Various : Various	2.670	0.000		0.000		0.000		-		0.000	0.000	2.670	-
LDUUV Vehicles, Hardware, Design, & Demos	WR	NUWC Newport : Newport, RI	64.760	0.000		4.000	Nov 2023	4.500	Nov 2024	-		4.500	Continuing	Continuing	Continuing
LDUUV Vehicles, Hardware, Design, & Demos	C/CPFF	Various : Various	46.569	0.000		0.500	Jan 2024	0.500	Jan 2025	-		0.500	Continuing	Continuing	Continuing
LDUUV Vehicles, Hardware, Design, & Demos	WR	NSWC Carderock : West Bethesda, MD	23.613	0.000		0.800	Nov 2023	0.294	Nov 2024	-		0.294	0.000	24.707	-
LDUUV Vehicles, Hardware, & Design	WR	NSWC Panama City : Panama City, FL	0.166	0.000		0.000		0.000		-		0.000	0.000	0.166	-
LDUUV Vehicles, Hardware, Design, & Demos	SS/CPFF	ARL PSU : State College, PA	31.977	0.000		0.500	Jan 2024	0.500	Jan 2025	-		0.500	0.000	32.977	-
LDUUV Vehicles, Hardware, Design, & Demos	WR	SSC Pacific : San Diego, CA	2.139	0.000		0.000		0.000		-		0.000	0.000	2.139	-
LDUUV Vehicles, Hardware, Design, & Demos	WR	NUWC Keyport : Keyport, WA	19.706	0.000		0.000		0.000		-		0.000	0.000	19.706	-
LDUUV Experimentation and Risk Reduction - Battery Certification	WR	NSWC Crane : Crane, IN	2.693	0.000		0.000		0.000		-		0.000	0.000	2.693	-
LDUUV Platform Integration	Various	Various : Various	6.615	0.000		0.000		0.000		-		0.000	0.000	6.615	-
LDUUV Risk Reduction Sonar	SS/CPFF	ARL UT : Austin, TX	0.551	0.000		0.000		0.000		-		0.000	0.000	0.551	-
FLEET Expiration	WR	NUWC NPT : Newport, RI	10.092	0.000		0.000		0.000		-		0.000	0.000	10.092	-

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Navy** **Date:** March 2024

<b>Appropriation/Budget Activity</b> 1319 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0604031N / Large Unmanned Undersea Vehicles	<b>Project (Number/Name)</b> 2094 / Unmanned Underwater Vehicle
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<b>Product Development (\$ in Millions)</b>				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
FLEET Expiration	SS/CPFF	ARL PSU : State College, PA	0.300	0.000		0.000		0.000		-		0.000	0.000	0.300	-
FLEET Expiration	Various	Various : various	1.950	0.000		0.000		0.000		-		0.000	0.000	1.950	-
<b>Subtotal</b>			213.801	0.000		5.800		5.794		-		5.794	Continuing	Continuing	N/A

**Remarks**  
FY22 - \$36.0M Above Threshold Reprogramming (ATR)

<b>Support (\$ in Millions)</b>				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
LDUUV Engineering Support	WR	NUWC Newport : Newport, RI	3.736	0.000		0.000		0.000		-		0.000	0.000	3.736	-
LDUUV Launch and Recovery Engineering Support	WR	NSWC Panama City : Panama City, FL	0.306	0.000		0.000		0.000		-		0.000	0.000	0.306	-
LDUUV Hydrodynamics and Propulsion Engineering Support	C/CPFF	Various : Various	1.346	0.000		0.000		0.000		-		0.000	0.000	1.346	-
LDUUV Hull and Propulsion Engineering Support	WR	NSWC Carderock : West Bethesda, MD	3.321	0.000		0.000		0.000		-		0.000	0.000	3.321	-
LDUUV Command and Control Engineering Support	WR	SSC Pacific : San Diego, CA	1.530	0.000		0.000		0.000		-		0.000	0.000	1.530	-
LDUUV Engineering Support	SS/CPFF	APL/JHU : Laurel, MD	1.635	0.000		0.000		0.000		-		0.000	0.000	1.635	-
LDUUV ILS and Engineering Support	WR	NUWC Keyport : Keyport, WA	0.958	0.000		0.525	Nov 2023	0.525	Nov 2024	-		0.525	0.000	2.008	-
<b>Subtotal</b>			12.832	0.000		0.525		0.525		-		0.525	0.000	13.882	N/A



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**Exhibit R-4, RDT&E Schedule Profile: PB 2025 Navy** **Date:** March 2024

<b>Appropriation/Budget Activity</b> 1319 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0604031N / <i>Large Unmanned Undersea Vehicles</i>	<b>Project (Number/Name)</b> 2094 / <i>Unmanned Underwater Vehicle</i>
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LDUUV	FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028				FY 2029											
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q								
<b>LDUUV Development</b>																																				
Vehicle Refurbishment					Vehicle Refurbishment																															
Transition to Fleet									Transition to Fleet																											
Continue Capability and Fleet Demos													Continue Capability and Fleet Demos																							

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2025 Navy		<b>Date:</b> March 2024
<b>Appropriation/Budget Activity</b> 1319 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0604031N / <i>Large Unmanned Undersea Vehicles</i>	<b>Project (Number/Name)</b> 2094 / <i>Unmanned Underwater Vehicle</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>LDUUV</i></b>				
LDUUV Development: Vehicle Refurbishment: Schedule Detail	1	2024	3	2024
LDUUV Development: Transition to Fleet: Schedule Detail	1	2025	2	2025
LDUUV Development: Continue Capability and Fleet Demos: Schedule Detail	3	2025	4	2029